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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/495,540	02/01/2000	Vinay Agarwala	5448-009	4994

7590 08/24/2004

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EXAMINER

HARVEY, DAVID E

ART UNIT	PAPER NUMBER
	2614

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/495,540	AGARWALA
	Examiner	Art Unit
	DAVID E HARVEY	2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
 THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 07 June 2004.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 7-9,20-22,31 and 32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 7,20 and 31 is/are rejected.
- 7) Claim(s) 8, 9, 21, 22, and 32 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____.
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____.

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsui [JP 6-339150].**

I. Preface:

The following is noted:

1) Applicants' own figure 2 illustrates a conventional "alpha mixer";

2) Such conventional "alpha mixer" operate to combine two video signals according to equation:

$$(\alpha) \times (\text{video signals A}) + (1-\alpha) \times (\text{video signal B}) = \text{combined video signal.}$$

3) The equation recited in lines 12-15 of claim 7 fails to distinguish the claim over conventional "alpha mixer" in view that the recited equation represents/encompasses conventional "alpha mixing" when β is equal to β' .

II. The Showing of Matsui:

As is described in the abstract with reference to the figure, Matsui disclosed a process for forming a composite image that included:

A) A step/element (@ 1) for providing a foreground image having:

- 1) A foreground object portion (2);
- 2) A shadow portion (3); and

- 3) An a blue background portion;
- B) A *step/element* (@ 4) for providing a background image;
- C) A *step/element* for generating a chroma-key signal from the blue background of the foreground image and for utilizing the generated chroma-key signal to separate the foreground image into two separate foreground image components:
 - 1) A first component (@ 5) comprising the foreground object portion; and
 - 2) A second component (@ 6) comprising the remaining background portion of the foreground image including the shadow portion and the blue background portion;
- D) A *step/element* for calculating an average brightness level of the image (@ 6) representing the background portion of the foreground image and for utilizing this average brightness level to generate a threshold level;
- E) A *step/element* for using this generated threshold level to extract the shadow portion (@ 7) from the blue background portion;
- F) A *step/element* for adding the extracted shadow portion (@ 7) to the background image (@ 4) to create a first combined image (@ 8) representing a modified background image;
- G) A *step/element* for combining the first combined image (@ 8) with the object image (@ 5) to create a final composite image (@ 9).

III. With respect to the limitations of claim 7:

- 1) The recited "**foreground image**" of claim 7 corresponds to the foreground image component (@ 6) in Matsui;
- 2) The recited "**shadow control module**" corresponds to the steps/elements which generated the described

threshold level from said foreground image (@ 6), and to the steps/elements that are inherent in Matsui which compared this generated threshold level to the pixels of the foreground image to generate a "shadow key" signal identifying those pixels which exceeded the threshold level and those pixels which did not exceed the threshold level;

- 3) The recited "**shadow generation module**" corresponds to the steps/elements in Matsui which actually selected/passed the shadow pixels to the shadow image (@ 7) based on the "shadow key" that was inherently produced by the described threshold process; and
- 4) The recited "**shadowing module**" is met by the steps/elements in Matsui which operated to produce the modified background image signal (@ 8) from the background image (@ 4) and the extracted shadow component (@ 7).

IV. Differences:

Claim 7 differs from the showing of Matsui only in that claim 7 recites:

- 1) That the images being combine are "video" images; and
- 2) The combining equation that is set forth in lines 12-15.

V. Obviousness:

A) While the images shown in the figure of Matsui were not described within the "Abstract" as having comprised "video" images, one of ordinary skill in the art would have recognized the obviousness of having utilized the described chroma-key process of Matsui to combine "video" images given the fact that video image applications represented an area in the TV art in which chroma-key mixing techniques were known to have been desirably utilized.

B) The equation set forth in lines 12-15 of claim 7 is met by conventional "alpha mixing operation for reason explained in part I of this Office action. Use of a conventional "alpha mixing operation in Matsui would have been a obvious and desirable choice of design given the well known advantages associated therewith. That is:

- 1) The equation defined by the recitation of claim 7 represents a notoriously well known and conventional additive mixing formula

whereby the net % of mixed components being added, advantageously, always equals “one” (i.e. 100%).

2) It would have been obvious to one of ordinary skill to have additively mixed the images @ 4 and @ 7 via a mixing ratio which adds up to “one” as prescribed by the recited “conventional” formula to obtain well known benefits provided thereby; i.e. to prevent overflow and/or clipping.

3. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsui [JP 6-339150] for the same reasons that were set forth for claim 7 above.

4. Claims 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsui [JP 6-339150] for the same reasons that were set forth for claim 7 above. Additionally, the following is noted:

The examiner takes Official Notice that it was notoriously well known in the art to have been advantageous to have used conventional software driven “computers” to perform all types of image/video processing including image/video compositing; e.g. given the inherent and desirable flexibility offered by such computer implementation. Being such, it would have been obvious to ones of ordinary skill in the art to have programmed a computer to provide the image/video signal processing described by Matsui.

5. Mendrala et al. has been cited because it illustrates a system for adding shadows to composites images/video.

6. Claims 8, 9, 21, 22, and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

a) In the context of the claims, the prior art of record fails to show or suggest the reciting method of compositing (i.e. one in which B is not equal to B').

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID E HARVEY whose telephone number is (703) 305-4365. The examiner can normally be reached on M-F from 9AM to 6PM

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller, can be reached on 703-305-4795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


DAVID E HARVEY
Primary Examiner
Art Unit 2614

DEH 8/04